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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/918,377
Filing Date: July 30, 2001
Appellants: RATCLIFF ET AL.

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For Appellants

EXAMINER'S ANSWER

This is in response to the appeal brief filed 05/30/2006 appealing from the Office action mailed 01/14/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,155,743	JACOBS	10-1992
6,092,119	ROSSMERE et al	7-2000
6,148,314	MATHENY et al.	11-2000
6,198,826	COWIESON et al.	03-2001
6,298,370	TANG et al.	10-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1, 6-7, 12-13, and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson").

Regarding **claim 1**, Cowieson teaches an audio processing machine comprising (see Fig. 1A, 2, 4, and respective portions of the specification):

a plurality of audio inputs (Lin 11, Rin 12; Fig. 1A; col. 2, lines 59-65);

a plurality of audio outputs (Slout 41, Srout 42; Fig. 1A; col. 2, lines 59-65);

a plurality of audio filters (Q-filter 34, Q-filter 43' Q-filter 44; Fig. 1A; col. 2, line 65 – col. 3, line 5);

a plurality of audio processing channels (Left and Right channels; col. 4, lines 54-57); and

a plurality of summers, which when subtracting the input signal from the output of Q-filter, L input 11 is also connected to Q-filter 43 as shown in FIG. 1. This is more clearly shown in FIG. 4. Also, R input 12 is connected to Q-filter 44. Both of these filters may be Q1 filters. The output each Q-filter is subtracted from the opposite input via summers 45 and 46. For example, the output of Q1 filter 44 is subtracted from L input 11 and used as the left rear or surround output 41. Right rear or surround output 42 is similarly formed from the output of Q-filter 43 subtracted from the R input. In this instance the outputs are L-Q[R] for L rear output 41 and R-Q[L] for R rear output 42, and thus the center information is canceled out. Thus summers (45) and (46) function as switches for not outputting any output to Slout and Rlout (45, 46, col. 4,

lines 24-37), configured to selectively mix the plurality of audio inputs (Lin, Rin) and the plurality of audio outputs (outputs of Q-filter 43; Q-filter 44) such that audio signals passing through the plurality of audio inputs are processed via a plurality of audio filters (Q-filter 43; Q-filter 44) selected from the plurality of audio filters (Q-filter 43, Q-filter 44; Fig. 1A; col. 4, lines 23-37) and a plurality of audio processing channels selected from the plurality of audio processing channels (Left and Right channels; col. 4, lines 54-57) to generate at least one desired audio output signal (SRout 42; col. 4, lines 24-37).

Cowieson does not specify the switches 45 and 46 are multiply switches. However, in audio processing art, multiply switch is well known. Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate teaching of multiply switch with Cowieson in order to utilize software programming in audio processing.

Regarding **claims 7, 13, and 18**, these claims have similar limitations as claim 1. Therefore, they are rejected under Cowieson for the same reasons set forth in the rejection of claim 1.

Regarding **claims 6, and 12,** the Cowieson's filters are the Q-filters, which can be configured as the biquad filters.

3. **Claims 2-3, 8-9, 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson") in view of Matheny et al. US. Patent 6,148,314 (hereinafter, "Matheny").

Regarding **claims 2, 8, and 14,** Cowieson teaches audio processing device according to claims 1, 7, and 13, respectively. However, Cowieson reference does not explicitly disclose wherein the plurality of multiply switches are comprised of single-cycle multiply switches.

Matheny teaches the multiplier 18, Fig. 2A performs a single-cycle multiply (col. 5, lines 36-41). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate such teaching with Cowieson in order to allows the processing cycle count for the fed back additions to be reduced, as suggested by Matheny in column 2, lines 40-41.

Regarding **claims 3, 9, and 15,** Cowieson teaches audio processing device according to claims 1, 7, and 13, respectively. Matheny further teaches wherein the plurality of multiply switches are comprised of programmable multiply switches (col. 3, lines 49-57).

4. **Claims 4, 10, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson") in view of

Matheny et al. US. Patent 6,148,314 (hereinafter, "Matheny"), and further in view of Tang et al. U.S. Patent 6,298,370 (hereinafter, "Tang").

Regarding **claims 4, 10, and 16,** Cowieson in view of Matheny teaches audio processing device according to claims 3, 9, and 15, respectively. However, Cowieson in view of Matheny does not explicitly disclose wherein the programmable multiply switches are reconfigurable on-the-fly.

Tang teaches a process of a computer system wherein the programmable multiply switches are reconfigurable on-the-fly (col. 116, lines 30-35). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate such teaching of Tang with Cowieson view of Matheny for purpose of allocation logic operations for performing resource management and dynamic load balancing for computer systems, as suggested by Tang in column 116, lines 37-39.

5. **Claims 1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs U.S. Patent 5,155,743, in view of Rossmere et al. US. Patent 6,092,119, (hereinafter "Rossmere").

Regarding **claim 1**, Jacobs discloses a digital converter for use in audio application comprising:

a plurality of audio inputs (audio bit-streams 52, 53; Fig. 4);

a plurality of audio outputs (audio outputs 66,67; Fig. 4);

a plurality of audio filters (audio filters 11; Fig. 4);

a plurality of audio processing channels (processing channels 64,65; Fig. 4; col. 11, lines 36-65);

In Jacobs, the audio inputs are processed, filtered such that the audio processing channels (64-65) can be selected to generate at least one desired audio output signal. Jacobs, however, does not explicitly teach a plurality of switches configured to selectively mix the plurality of audio inputs and the plurality of audio outputs.

Rossmere discloses random access audio/video processor with compressed video resampling to allow higher bandwidth throughput. In Rossmere the switches (305, 310, etc.) of the board (152; Fig.3B) are to receive audio inputs and these inputs are to be mixed by the board (160; Fig. 3A), and the board (155; Fig. 3B, see col. 7, line 9 to col. 8, line 25; also see Fig. 2; col. 6, lines 14-61 for overview operation; Figs 10A-10D, 11 show how the switches using multiply: changing the ratio or may ramping the ratio during switching; col. 14, lines 21-54).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ a mechanism where switches and mixer are used to mix the audio inputs and outputs as taught by Rosemere into the system of Jacobs such that to provide a system with input audio streams to be mixed, filtered, and to be reconfigured with audio outputs such that to provide a quality audio output signals via audio processing channels for music production (col. 14, lines 59-67).

Regarding **claims 7, 13, and 18**, these claims have similar limitations as claim 1. Therefore, they are rejected under Jacobs-Rossmere for the same reasons set forth in the rejection of claim 1.

Regarding **claims 2, 8, and 14,** the Rossmere's switches can be configured as single-cycle multiply switches.

Regarding **claims 3, 9, and 15,** the Rossmere's switches are programmable switches.

Regarding **claims 4, 10, and 16,** the Jacobs's audio inputs are the audio bit-streams, which can be configured on the fly.

Regarding **claims 6, and 12,** the Jacobs's filters are the low pass-filters, which can be configured as the biquad filters.

Regarding **claim 19,** this claim has similar limitations as Claims 18 and 4. Therefore it is interpreted and rejected under Jacobs in view of Rossmere for the reasons set forth in the rejection of Claims 18 and 4.

(10) Response to Argument

6. Appellants' arguments filed on 05/30/2006 have been fully considered but are not persuasive.

7. Appellants assert on page 3 regarding Claim 1:

> Appellants reply that the "channels" of col. 4, ln. 54-57 refers to the left and right stereo signals, not to hardware as required by claim 1. Further, the summers of Cowieson do not allow mixing of (i) input signals, (ii) filtered signals, and (iii) channel processed signals as required by claim 1; as Cowieson Figs. 1 A, 2, and 4 show there are summers between inputs and filters and between filters and outputs, but there are no summers between processing channels and outputs.

8. Examiner respectfully disagrees. There is no "hardware" being claimed. Claim 1 only claims "audio processing channels". Cowieson refers "channels" as left and right channels in which sound, i.e., audio, being processed, i.e., processing, please see also column 3, line 66 to col. 4, line 3; col. 4, lines 34-36. Thus left and right channels are clearly met "audio processing channels".

9. In addition, regarding argument that the summers of Cowieson do not allow mixing of "(i) input signals, (ii) filtered signals, and (iii) channel processed signals" as required by claim 1, these limitations are also met as discussed below. Cowieson discloses to selectively mix the plurality of audio inputs (i.e., Lin, Rin) and the plurality of

audio outputs (i.e., outputs of Q-filter 43; Q-filter 44) such that audio signals passing through the plurality of audio inputs are "processed via", i.e., not mixed, a plurality of audio filters (Q-filter 43; Q-filter 44) selected from the plurality of audio filters (Q-filter 43, Q-filter 44; Fig. 1A; col. 4, lines 23-37) and a plurality of audio processing channels selected from the plurality of audio processing channels (Left and Right channels; col. 4, lines 54-57) to generate at least one desired audio output signal (SRout 42; col. 4, lines 24-37).

10. In response to Appellants' argument that the references fail to show certain features of Appellants' invention, it is noted that the features upon which Appellants relies (i.e., there are no summers between processing channels and outputs) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

11. Regarding to independent claims 7, 13, and 18, Appellants make an argument similar to claim 1. Please see § 8, § 9, § 10 above for response.

12. Regarding to claims 2-3, 8-9, and 14-15, Appellants rely upon the patentability of parent claims 1, 7, and 13. Please see § 8, § 9, § 10 above for response.

13. Regarding to claims 4,10, and 16, Appellants rely upon the patentability of parent claims 1, 7, and 13. Please see § 8, § 9, § 10 above for response.

14. Appellants further assert on page 4 regarding Claim 1:

> Appellant's reply that the cited "channels" of Jacobs are signals and not hardware as required by claim 1; see Jacobs col. 11, In. 57-58. Further, the outputs of the cited filters (Jacobs Fig.4, items 11 at right edge) are directly connected to the outputs and cannot be mixed as required by the hardware of claim 1.

15. Examiner respectfully disagrees. There is no "hardware" being claimed. Claim 1 only claims "audio processing channels". Jacobs refers "channels" as Channel 1 and Channel 2 in which process audio bit-stream channel 1, audio bit-stream channel 2 to output audio output channel 1, audio output channel 2. Channel 1 D-A output 64 and Channel 2 D-A output 65 also indicate that there are Channel 1 and Channel 2 each has the output. Please see Fig. 4; col. 11, lines 36-65. In addition, as presented in the Office Action, Jacobs in view of Rossmere teaches selectively mix audio inputs and audio outputs as claimed.

16. Regarding to independent claims 7, 13, and 18, Appellants make an argument similar to claim 1. Please see § 15 above for response.

As these are the totality of arguments presented, and they have been found unpersuasive, the existing rejection is deemed appropriate.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

17. **NOTE:** The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615.

Respectfully submitted,

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August 15, 2006

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